MIMAP Bangladesh

Micro Impacts of Macroeconomic and Adjustment Policies in Bangladesh

Working Paper No. 08

Agricultural Growth-Poverty Linkages: Issues and Implications for Policies in Bangladesh

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Agricultural Growth – Poverty Linkages: Issues and Implications for Policies in Bangladesh

1. Introduction

The relationship between growth and poverty is an issue of debate for a long time. On the one extreme, the 'growth optimists' argue that the poor would benefit automatically with growth in average incomes through the so-called 'trickle down' mechanism. A strong opposing view also exists which maintains that reduction in inequality is necessary to tackle poverty and places the distribution of income and wealth at the centre-stage. Significant empirical evidence has enriched the debate during the 1990s largely due to availability of data on income distribution from a number of countries. Many of these studies emphasize the importance of growth and point out that countries with higher per capita income or consumption have less poverty (see, for example, Fields 2001). Datt and Ravallion (1992), using a method to decompose the changes in poverty into 'growth effect' and 'distribution effect', conclude that the growth effect explains the largest part of observed changes in poverty in India and Brazil. Similarly, White and Anderson (2001), looking at the income of the bottom 20 per cent of the population, argue that growth, on average, is more important than distributional change. The analysis based on 'spells' (that is, instances where two or more comparable household surveys are available from the same country at different points of time) also suggests that increases in mean income tend to be strongly and significantly associated with falling poverty rates (Ravallion 1995, 2001). In general, these studies provide support to the view that distributional change is too slow to be relied upon for poverty reduction and growth is the major tool for fighting poverty (see Bruno, Ravallion and Squire 1998, Fields 2001).

A potential danger of the above arguments, however, is the risk of their interpretation in terms of 'growth is all that matters'. Despite the imperative of growth as necessary for poverty reduction, inequality also matters and needs to be kept high 'on the agenda' (Kanbur and Lustig 1999). It has been argued that there exist multiple channels through which growth and distribution are related and the effectiveness with which growth translates into poverty reduction depends crucially on initial inequality (Ravallion 1997, Deninger and Olinto 2000). The degree of

inequality determines the poverty elasticity of growth so that an unequal income distribution acts as a serious impediment to effective poverty reduction. A further implication of this is that the 'growth versus redistribution' dichotomy is not true since the growth effect is itself a function of the degree of inequality. As for poverty reduction, it is important, therefore, to consider both the level of inequality and its changes with growth because (i) the level of inequality affects poverty for any given income; (ii) inequality affects the growth elasticity of poverty and lower inequality accelerates poverty reduction for a given growth rate; and (iii) initial inequality is harmful for growth. Effective policies for reducing inequalities, or at least prevent them from rising, are essential for success in poverty reduction. In this context, the importance of agriculture as an 'engine of growth' for poverty reduction is often emphasized in Bangladesh due to its potential in creating a growth structure that has a high capacity to reduce poverty (Mujeri 1999, World Bank 1998).[1]

The paper examines the pattern of economic growth during the 1990s in order to assess the role of agriculture in promoting equitable growth in Bangladesh. In particular, the paper examines the strength of the channels through which agricultural growth benefits the poor by increasing their incomes and identifies the measures that could bring a more pro-poor agricultural growth in the country. Section 2 of the paper examines poverty trends in the 1990s and the income profile of the poor to identify their major incomes sources. Section 3 provides an assessment of the growth performance of the economy during the 1990s and examines the relative strength of the linkages of agricultural growth with the incomes of the poor through sectoral and labor market channels. Some policy implications for strengthening agricultural growth – poverty linkages are presented in Section 4 while Section 5 provides the concluding remarks.

[1] The estimated values of net elasticity of poverty with respect to per capita consumption growth in agriculture, industry and services support the contention. In Bangladesh, the head count index as well as depth and severity of poverty is observed to decline more with growth in agriculture than in other two sectors. See World Bank 1998. For evidence from India, see Ravallion and Datt 1996. The poverty reduction impact of agricultural growth may, however, vary widely depending on its nature. In the Indian context, several factors e.g. inequality in endowments, market imperfections and low returns on agricultural assets have been identified which tend to constrain the flow of benefits of agricultural growth to the poor. As a result, wide incidence of rural poverty could still persist despite rapid agricultural growth. See Bardhan 1985, Gaiha 1995, Gaiha and Deolalikar 1993.

2. Poverty Trends and Income Profile of the Poor

Understanding the nature of poverty and the linkages between growth and poverty is important in designing appropriate growth strategies. The incidence of income poverty during the 1990s is given in Table 1. Between 1991/92 and 2000, the head count index of poverty declined from 59 per cent to 50 per cent, indicating a modest reduction rate of 1 percentage point per year. During the period, both rural and urban poverty declined: rural poverty declining from 61 per cent to 53 per cent and urban poverty from 45 per cent to 37 per cent. The absolute number of the poor over the period, however, declined by only 1 million due to increase in the number of the population. The sub-periods during the 1990s, moreover, showed significant variations in the rate of poverty reduction. At the national level, poverty incidence between 1992 and 1996 declined from 59 per cent to 51 per cent while the decline was by only 1 percentage point between 1996 and 2000. As a result, although the number of the poor declined from 64 million to 59 million during the earlier period, it increased to 63 million in 2000. In the rural areas, poverty incidence declined consistently in both the sub-periods: from 61 per cent to 55 per cent during 1992-1996 and further to 53 per cent in 2000. In the case of urban poverty, the declining trend during the 1992-1996 period was, however, reversed in the later period which increased to 37 per cent in 2000 from 29 per cent in 1995/96. In absolute terms, more than 85 per cent of the poor lived in rural areas in 2000.

Table 1

Poverty Incidence in the 1990s

	Head count ratio (%)			No. of poor (million)		
	1991/92	1995/96	2000	1991/92	1995/96	2000
National	58.8	51.0	49.8	63.9	59.4	62.7
Rural	61.2	55.2	53.0	57.6	53.6	53.4
Urban	44.9	29.4	36.6	6.3	5.8	9.3

Note: The head count ratio refers to the percentage of the population living below the upper poverty line as measured by the Cost of Basic Needs (CBN) method. The number of the poor has been derived using total population living in rural and urban areas implicit in respective surveys.

Source: BBS 2001.

The pattern of decline in poverty over the two sub-periods as indicated by the above data from the Household Income and Expenditure Survey (HIES) series, however, shows considerable discrepancies when compared with other data sources. For example, the growth of per capita consumption as per the HIES data is considerably higher than similar growth calculated from the National Accounts (NA) estimates during 1992-1996 while the reverse is true for the second sub-period. Between 1991/92 and 1995/96, nominal per capita expenditures increased by 39 per cent according to HIES data but by 28 per cent as per the NA series. On the other hand, HIES data show only 15 per cent increase in nominal per capita expenditures between 1995/96 and 2000 compared to 31 per cent given by the NA. This raises the question: which of the two data sets is correct? While it is difficult to assess the reliability of either of the series in the absence of further evidence, a simple sensitivity test using the distribution of consumption expenditure as indicated by the HIES and alternative suvey mean consistent with the NA series indicates a reversal of poverty trends between the two sub-periods (Sen and Mujeri 2002). The results show an increase of 2 percentage points in national poverty between 1991/92 and 1995/96 and a decline of 10 percentage points between 1995/96 and 2000.[2] The available evidence, while is unlikely to resolve the issue, nevertheless points to the existence of significant incidence of poverty in the country: one of every two persons in Bangladesh is poor.

Income Profile and Occupational Characteristics

The profile of the poor and their occupational characteristics indicate that the poor have substantial heterogeneity in terms of socioeconomic and other characteristics such as physical and human resource endowments and nature of occupation and employment. In particular, the agricultural labor households have a

[2] While the trends in rural poverty are somewhat consistent with other evidence, the trends in urban poverty are confusing. In the case of rural poverty, the modest rate of reduction is supported by the Poverty Monitoring Survey (PMS) of the BBS and the trends in rural per capita expenditures reported in the HIES are consistent with the trends in the agricultural wage rate index over the period. However, the urban poverty trends are inconsistent with PMS results. Moreover, it is difficult to reconcile the increases of 62 per cent during 1992-1996 and only 3 per cent in 1996-2000 in urban nominal per capita expenditures reported by HIES with sectoral GDP growth rates and trends in manufacturing wage index. In particular, the HIES data imply a negative growth in real per capita consumption in urban areas during 1996-2000. The NA data for the period show a 14 per cent increase in real per capita national consumption and it is more likely that urban consumption growth is higher than rural consumption growth. These alternative evidence casts doubt on the negative real consumption growth in urban areas during 1996-2000. This suggests that the HIES possibly has overestimated the growth in urban per capita expenditures between 1991/92 and 1995/96 while underestimating similar growth between 1995/96 and 2000 thereby indicating a worsening urban poverty situation during the later period.

high incidence of poverty as do non-agricultural casual and relatively unskilled workers. In both rural and urban areas, the incidence of poverty is significantly high (75 per cent and 67 per cent respectively) for the households headed by casual wage laborers (Table 2). Of the total number of the poor, 46 per cent in rural areas and 36 per cent in urban areas belong to such households. Similarly, households whose heads are self-employed in agriculture and non-agriculture sectors account for 40 per cent and 35 per cent of the poor in rural and urban areas respectively. The poor households typically own less land and are highly represented (e.g. 59 per cent of total number of rural poor in 2000) among the functionally landless households owning less than 0.05 acres of land. Another 31 per cent of the rural poor have land ownership of less than 1.50 acres. These characteristics indicate that labor is the main asset and income source of the poor households in the country.

Table 2

Poverty Incidence by Occupation of Household Head, 2000

Occupation	Rural			Urban		
	Head count index (%)	% of Population	% of Poor	Head count index (%)	% of Population	% of Poor
Casual wage labor	74.9	33	46	66.9	20	36
Salaried employment	35.1	9	6	24.1	30	20
Self-employment: non-agriculture	44.6	18	15	32.2	32	28
Self-employment: agriculture	43.3	31	25	47.9	5	7
Unemployed/ not working	42.9	10	8	25.9	13	9
Total	53.0	100	100	36.6	100	100

Source: World Bank 2002.

The income profile of the poor reveals two important features. *First,* high reliance on daily wage labor as the major source of household income. For the poorest 20 per cent of the households, daily wage income provides nearly half of total income. Agricultural income also provides a greater share of income for the poorer groups compared with the relatively better-off households. *Second,* the importance of non-farm sector as a source of income. For the poorest 10 per cent of the rural

population, about 40 per cent of the income is derived from non-agricultural sources like wages earned in non-farm sector, family business income, remittances or other incomes. This shows the broad range of earning strategies that the poor pursue to earn their livelihoods and the importance of alternative income generation activities that characterize the behavior of the poor.[3]

One important aspect of alternative income sources is to examine the relative importance of each source to the poor. Some evidence on the issue can be derived from the Gini income elasticity (GIE) decomposition which shows the contribution of each source of income to overall income inequality.[4] Table 3 shows the GIE in terms of broad income sources of the households in Bangladesh. The results show that the contribution of daily wage labor income is the highest in reducing income inequality followed by agricultural income. All other income sources have inequalizing effects on the overall income distribution. Since labor is the most important and abundant asset of the poor, trends in employment and wages are important in determining the pace of poverty reduction. We shall discuss these issues in Section 3.

Table 3

Gini Income Elasticity by Major Income Sources, 2000

Source of Income	Share of income	Gini income elasticity
Daily wage labor	0.145	-0.218
Agriculture	0.169	0.717
Salaried employment	0.162	1.247
Non-agriculture	0.271	1.448
Other sources	0.251	1.264
Total	1.000	...

Source: World Bank 2002.

[3] The 2000 HIES shows that 54 per cent of the households in the country get income from more than one source. Similarly, among households for whom agricultural or non-farm wage labor is the main source of income, about 40 per cent also earn some income from non-wage agriculture.

[4] The GIE of each income component is defined as the impact of a Taka one increase, distributed as a constant percentage change in the distribution of income from the particular component, on overall income inequality. If the GIE of the component is equal to one, a marginal increase from the source would not affect the overall Gini coefficient of income while an elasticity value of less than one indicates that an increase in income from the source would decrease the overall Gini. The reverse is true for a value of more than one.

3. Growth Performance and Agricultural Growth-Poverty Linkages: Some Evidence from the 1990s

Compared with an average annual growth of less than 4 per cent over the period of the 1970 and 1980s, the Bangladesh economy grew by 5 per cent during the 1990s. The average annual GDP growth rates between the two sub-periods of the 1990s (1992-1996 and 1996-2000), however, varied: 4.7 per cent during the first period compared with 5.2 per cent during the second period (Table 4). The variation was largely due to fluctuations in agricultural GDP: from an annual average of 1.7 per cent during 1992-1996 to 4.9 per cent during 1996-2000. The growth rate of non-agricultural GDP was relatively stable. The per capita GDP grew at 2.7 per cent per year during the first period which increased to 3.6 per cent during the second period. In the case of agricultural GDP, the annual growth rate in per capita terms, which was –0.3 per cent during the first period, increased robustly at 3.2 per cent over the second period. The period also witnessed a declining trend of agriculture's share in GDP: from 30 per cent in 1989/90 to 25 per cent in 1999/00. Moreover, over the longer term, the growth of agricultural output barely kept pace with the population growth.[5]

Table 4
Economic Growth in the 1990s

		Percent per year	
		1992-1996	1996-2000
A.	**Total**		
	GDP	4.7	5.2
	Agricultural GDP	1.7	4.9
	Non-agricultural GDP	5.7	5.1
B.	**Per Capita**		
	GDP	2.7	3.6
	Agricultural GDP	-0.3	3.2
	Non-agricultural GDP	3.8	3.5

Note: The growth rates are expressed at constant 1995/96 prices and are based on BBS data.
Source: BBS 2000, 2001.

[5] The stagnation of per capita agricultural output in the country can be seen from the following alternative indices for the period 1981-2000:

ln PCFP = 4.525 + 0.0026 T (1.39) $R^2 = 0.097$

ln PCVA = 4.562 + 0.0030 T (2.22) $R^2 = 0.214$

ln PCAP = 4.516 + 0.0060 T (4.85) $R^2 = 0.567$

where PCFP = index of per capita food production, PCVA = index of per capita agricultural value added, PCAP = index of per capita agricultural production, T = time trend and figures in parentheses refer to t values. The stagnation is particularly evident from per capita food production and value added which parallels the observed lack of any significant improvement in poverty situation, particularly in rural areas.

A disaggregated picture of agricultural growth over the two sub-periods of the 1990s shows that, in general, all sub-sectors grew rapidly during 1996-2000 (Table 5). The difference in growth performance between the pre-and post-1996 periods, however, was largely due to the significantly higher growth in the crop sub-sector. Both cereal and non-cereal crops grew rapidly during the later period. While the higher growth in cereals was led by dry-season production of *boro* rice and wheat, the growth in non-cereals was contributed by several crops, particularly vegetables and spices, rather than the major traditional crops like jute, sugarcane, pulses and tobacco (Mujeri 2001). The important point to note, however, is the fact that for most crops that experienced high growth, the net financial returns are relatively high indicating favorable price responses by the farmers.[6] From the poverty perspective, the important issue is to examine as to how the poor benefited from these changes.

Table 5

Agricultural Growth by Sub-Sectors during the 1990s

		Per cent per year at constant 1995/96 prices	
		1990-1996	1996-2000
A.	Crop & Horticulture	-0.09	4.64
	Cereals	-0.61	5.23
	Rice	-0.88	5.12
	Wheat	7.44	7.82
	Non-cereals	1.01	3.21
B.	Animal Farming	2.40	2.67
C.	Forest & Related Activities	2.93	4.66
D.	Fishing	7.78	8.85
	Agriculture	1.81	5.32

Source: BBS 2000.

Income Growth and Inequality Changes

The growth in income and changes in income inequality during the 1990s show significant variations across rural and urban areas (Table 6). In rural areas, real per capita income declined during 1992-1996 while it increased by nearly 2 per cent per year over the 1996-2000 period. It may be noted that the first period was marked

[6] Net financial returns of most vegetables and spices are high. For instance, net returns per hectare during 1997-1999 were estimated at Tk. 93,730 for tomato, Tk. 42,638 for cabbage, Tk. 52,636 for HYV potato, Tk. 97,482 for onion compared to Tk. 7,299 for HYV *boro* rice. See Shahabuddin and Dorosh 2001.

Table 6

Rural-Urban Income Growth and Inequality Changes

	Real monthly per capita income (Tk.)			Annual change (%)		Income inequality (Gini coefficient)		
	1992	1996	2000	1992-1996	1996-2000	1992	1996	2000
National	405	436	480	1.91	2.52	0.39	0.43	0.42
Rural	376	364	392	-0.01	1.92	0.36	0.38	0.37
Urban	591	809	838	9.22	0.90	0.40	0.44	0.45

Note: In order to derive real incomes, the nominal incomes from the HIES data have been deflated by respective consumer prices indices with 1985/86 as the base.

Source: BBS 2001.

by a slow rate of agricultural growth (and a negative growth of per capita agricultural GDP) while the second period was characterized by a relatively high growth of agricultural GDP at nearly 5 per cent per year. On the other hand, urban income growth significantly slowed down during the second period compared with the first period. The above indicates a significant role of agriculture in increasing the growth of rural income. In the case of income inequality, Gini index in both rural and urban areas rose sharply between 1992 and 1996 which declined in rural areas in 2000 but continued its increasing trend in urban areas. The sources of changes in income inequality between 1992 and 1996 can be identified from the information given in Table 7.

Table 7

Sources of Income Inequality in Rural and Urban Areas, 1992-1996

Income source	Rural areas				Urban areas			
	Share of total income		Gini/concentration ratio		Share of total income		Gini/concentration ratio	
	1991/92	1995/96	1991/92	1995/95	1991/92	1995/96	1991/92	1995/96
Farm income	41.5	35.0	0.332	0.338	6.1	5.8	0.115	0.226
Wage income	21.4	27.0	0.102	0.143	36.6	35.8	0.276	0.266
Non-farm enterprises	15.3	19.1	0.224	0.329	28.4	37.7	0.306	0.464
Property income	0.9	1.4	0.552	0.572	3.7	3.4	0.643	0.644
Transfers	10.9	9.6	0.364	0.599	9.3	7.2	0.427	0.581
Rental value of housing	7.7	5.6	0.351	0.276	9.2	6.8	0.434	0.410
Miscellaneous income	2.3	2.3	0.426	0.403	6.7	3.3	0.424	0.442
Total	100	100	0.276	0.310	100	100	0.327	0.389
Annual per capita income (current Taka)	6,744	7,583	...		10,566	14,846	...	...

Note: These estimates of Gini ratios for both rural and urban income distribution are lower than those presented in Table 6 due to methodological differences in definition of income and method of ranking. Although the levels of inequality are different, the changes in inequality over the period are, however, similar.

Source: Khan and Sen 2001.

In the case of rural income, nearly four-fifths of the total income are accrued from farming, wages and non-farm enterprises. Over the 1992-1996 period, the shares of wages and non-farm income increased while the share of farm income declined. Except for wages, the concentration ratios of other sources of rural income (including farm income) are relatively high and, in most cases, the concentration ratios increased in 1995/96 compared to 1991/92. With a few minor exceptions (like rental value of housing and miscellaneous income), increased inequality in all other sources led to increased rural income inequality over the period. In urban areas, two sources – wages and non-farm enterprises – contributed 65 per cent of total income in 1991/92 which increased to 74 per cent in 1995/96, largely due to rise in the share of non-farm enterprises. A sharp increase in the concentration ratio of income from non-farm enterprises was the major contributor to increased urban income inequality during the period. The above indicates that, in both rural and urban areas, the existing structure of non-farm enterprises contributes to accentuation of income inequality. These results indicate that, although farm and non-farm incomes contribute to higher rural growth, these also have in-built income inequalizing forces under the existing socio-economic structures. The extreme inequality in land ownership pattern may be cited as an example. During 1996, 10 million (56 per cent) rural households were landless (owning less than 0.20 hectare) compared with 6.4 million (46 per cent) in 1983-84. The small and marginal holdings (with less than 1.01 hectares) accounted for 81 per cent of the farms in 1996 with 41 per cent of the operated land. In other words, 19 per cent of the farms controlled 59 per cent of operated land in agriculture. This suggests that, although agricultural growth matters for poverty reduction in the country, a relatively small share of benefits of farm income growth accrues to the poor households, creating less-than-anticipated impact on poverty.

Nevertheless, the growth incidence curve for the period 1991/92 to 2000 shows that all segments of the population in the country experienced growth in incomes during the period (World Bank 2002). The growth rates, however, varied considerably across different income groups indicating relatively more benefits to the lowest and the higher income groups than the middle ones.[7] A significance difference

[7] The annual growth in real per capita expenditures was the lowest (1.1 per cent) for the 30-50th percentile groups while similar growth rate was 1.5 per cent for the bottom 20 per cent of the population and more than 2.5 per cent for the top 20 per cent. One factor that might have contributed to better performance of the bottom 20 per cent is the expansion of NGO interventions and targeted programs.

between the rural and urban areas was, however, the broad-based nature of growth in rural areas. Despite lower growth in mean per capita expenditures in rural areas than in urban areas (1.7 per cent in rural areas compared to 2.3 per cent in urban areas), rural growth was more evenly distributed across different income levels. As a result, between 1992 and 2000, poverty declined by almost an equivalent magnitude (about 8 percentage points) in both locations. This shows that an agriculture-induced growth, despite extremely unequal distribution of land and other rural assets, still has the capacity to promote a more equitable income distribution in the country.

Employment and Wage Earnings

As indicated in the poverty profile, trends in employment and wages have important implications on the pace of poverty reduction in the country. At the aggregate level, the labor force grew by about 1.9 per cent per year during the 1990s, increasing from 51 million in 1990/91 to 60 million in 1999/00. Although agriculture is the main sector of employment, the non-farm sector has gained increasing importance over the years. Agriculture is the primary source of employment for 61 per cent of men and 56 per cent of women in rural areas (BBS 2002). The non-farm activities (mainly manufacturing, trade, transport and community services) are the main source of employment for about 40 per cent of the rural labor force and these also provide secondary employment for both men and women. During 1999/00, 35 per cent of the labor force was underemployed which was high in the agriculture sector (46 per cent) and among women (72 per cent).[8]

The sectoral trends in productivity and employment, however, show that although the non-agricultural sectors contributed more than 74 per cent to the GDP during the late 1990s, these sectors accounted for only 38 per cent of the total employment (Table 8). As a result, despite substantial growth in the 1990s, the real agricultural value added per worker declined as more workers were forced to seek employment in the 'residual' agriculture sector as unskilled workers. The real wages of agricultural labor remained low compared to other sectors.[9] Moreover, the

[8] Underemployment refers to the share of employed persons working less than 35 hours during the reference week.
[9] With 1969/70 as the base, the real wage rate index in agriculture stood at 103 in 1999/00 compared to 137 in manufacturing and 116 in construction. See MOF 2001. Despite the stagnation, relationships between real agricultural wages and agricultural growth can be observed. During the 1982-1998 period, out of nine years in which real wage rates increased, five years witnessed increases in agricultural growth. Similarly, real wage rate declines in five out of the six years during the period were associated with declines in agricultural growth. See Mujeri 1999.

economy as a whole experienced a decline in value added per worker during the 1990s compared to the mid-1980s. Nevertheless, employment in non-agricultural occupations provides a 25-34 per cent premium compared to daily wage work in agriculture even after controlling for differences in education and other characteristics (World Bank 2002).

Table 8

Trends in Sectoral Value Added and Employment

A. Sectoral share of value added and employment

	1990/91		1995/96		1999/00	
	Value added	Employment	Value added	Employment	Value added	Employment
Agriculture	29.2	66.4	25.7	63.3	25.6	62.3
Industry	21.1	13.0	24.9	9.6	25.7	10.3
Services	49.7	20.6	49.4	27.1	48.7	27.4
Total	100	100	100	100	100	100

B. Trends in value added per worker (Index 1985/86=100)

	Value added			Employment			Value added per worker		
	1990/91	1995/96	1999/00	1990/91	1995/96	1999/00	1990/91	1995/96	1999/00
Agriculture	111	121	149	191	198	207	58.1	61.1	72.0
Industry	130	191	244	176	141	162	73.9	135.5	150.6
Services	120	151	183	110	158	169	109.1	95.6	108.3
Total	119	149	184	164	179	190	72.6	83.2	96.8

Note: In part A, value added is taken as percentage of GDP and employment as percentage of total employed labor. In part B, employment is defined as employed labor in respective sectors with no adjustment for degree of underemployment.

Source: BBS 2000, 2001.

Food Prices and Poverty

The food consumption pattern and food prices have significant implications on poverty. The poor are adversely affected by higher food prices in the short run. The long-term impact, however, depends on adjustments resulting from higher prices e.g. linkage of wages to food prices and response of agricultural production to movement in terms of trade. If higher food prices lead to increased investment in food production and enhanced wages for agricultural labor, the poor could be better off despite higher prices.

With rise in agricultural output and productivity, real agricultural prices generally declined in the 1990s. In particular, the long term decline in real rice prices became prominent during the period (Mujeri 2001). As a result, the relative food price declined in rural areas (Table 9). Since the majority of the households are net purchasers of food in both rural and urban areas, these households benefited from declining food prices.[10] It is important, therefore, to recognize that adverse fluctuations in food prices affect the poverty status of the majority of the resource-poor households in the country.

Table 9

Trends in Relative Food Prices

(Per cent)

		1991/92	1995/96	1998/99
A. Measure 1				
	Rural	100.1	99.0	100.2
	Urban	100.5	101.2	104.8
B. Measure 2				
	Rural	100.2	97.1	101.2
	Urban	101.1	102.9	111.9

Note: Measure 1 gives the ratio of the value of the food component of consumer price index to the value of the consumer price index itself whereas Measure 2 provides the ratio of the values of the food component to the non-food component of the index. The rural and urban relative food prices are based on all rural and all urban consumer price indexes of the country with 1985/86 as the base.

Source: MOF 2001.

[10] Direct statistics on the number of net producer or consumer households are not available. Some estimates, however, can be made. The urban households are usually net purchasers but a substantial percentage of rural households also belong to the category. According to 1996 Agricultural Census, 29 per cent of rural households either do not own homestead land or own homestead land but no cultivated land. These households are net purchasers of food. Moreover, farm households with inadequate land (e.g. small farmers) are also dependent on the market for meeting their food requirements. A lower bound of nearly 87 per cent of rural households, consisting of non-farms and small farming households, can be taken who constitute net purchasers of food among all rural households. Even some medium farmers who have small marketable surplus may be affected by changes in food prices since they typically sell the surplus after harvest when prices are low and purchase food during the lean season when prices are usually high.

4. Strengthening Poverty Reduction Role of Agriculture: Some Policy Implications

Since the poor in Bangladesh live mostly in rural areas and depend on agriculture for their livelihoods, the growth of the rural economy is the key to poverty reduction. This requires accelerated growth of agriculture and the rural non-farm sector. For sustaining high rural growth with a better capacity to reduce poverty, rapid agricultural growth is necessary for (i) enhancing the rural wages; (ii) creating the synergies required in diversifying the rural economy; and (iii) enabling the supply of low-cost food to improve the nutritional status and food security of the population. Enhancing the poverty-reducing impact of agriculture needs to be designed through policies covering several dimensions. Besides the fact that growth of agriculture brings about growth of the rural economy, it is important to channel the impacts of productivity gains and falling real agricultural prices that accompany agricultural growth to the benefit of the poor.

It needs to be recognized, however, that reducing poverty is not a question of increasing agricultural production or generating rural incomes alone. For poverty reduction, it is also necessary to address the underlying structural and institutional factors that determine the access of the poor to assets and voices regulating competing claims on limited resources. Nevertheless, at the present stage of development of Bangladesh agriculture and given the constraints in resource availability, the priority is to ensure productivity growth. This requires better access to land, credit and institutions for the small farmers. For accelerating agricultural growth, comprehensive and re-inforcing developments in three key areas need emphasis: (i) raising productivity of existing crops, particularly rice, through increased yields and higher cropping intensity; (ii) diversifying crop production to cater to the changes in demand and market opportunities and generate alternative avenues of agricultural growth since foodgrains are unlikely to provide the required impetus in the medium to long run in view of low income elasticities for cereals and increasing urbanization; and (iii) expanding non-crop agriculture (e.g. livestock, poultry, fisheries and forestry). Crop diversification in the context of Bangladesh, at least in the medium term, does not mean a substitution out of cereals (rice). Rather the strategy would be to promote systematic arrangements for growing a variety of crops in rotation with rice to meet increasing demands for both cereals and other crops.

In addition to accelerating rural growth, expansion of agriculture along these lines holds considerable potential for poverty reduction. *First,* although household income of the poor farmers will not increase much through improvement in crop productivity due to small size of their holdings and unfavorable terms of trade of the major crop (rice), this will make significant contribution through increasing supplies and reducing unit cost of production. This will enable the access to food by the poor at affordable prices. The low food costs will have positive impact on real wages with a sobering effect on demand for nominal wage hikes. Such developments will contribute to increasing Bangladesh's competitiveness in labor-intensive non-agricultural and manufacturing activities. The poor will gain more if their educational attainment and skill levels are improved to enhance their chances of getting more remunerative jobs in the skilled labor-intensive sectors. Similarly, increased competitiveness of the unskilled labor-intensive industries will generate employment opportunities for the poor. *Second,* for increasing household income of the poor, expansion of non-crop agriculture and non-farm activities needs to be targeted. Non-crop agriculture (e.g. poultry and livestock) has a significant poverty-reducing role since land requirement for these activities is small and potential return is high. Since livestock (including poultry) represent one of the significant productive assets and sources of income for the poor, improving livestock productivity will have a directly beneficial impact on both the assets and income of the poor. The linkages of livestock with the crop sector along with livestock's capacity to reduce rural income disparities, particularly the role of household animal rearing in creating access to income and empowerment for the poor women, are features that need to be emphasized in the rural growth strategy. Similarly, fisheries and forestry activities can emerge as significant providers of employment and income for the poor and promote a pro-poor rural growth structure. Enhancing the productivity of common property resources and ecological reserves also has a large poverty-reducing role through expanding the scope of income-generating and expenditure-saving activities of the poor. *Third,* the non-farm sector needs to be developed as a leading sector of Bangladesh's rural economy. Given the characteristics of the rural labor market and the structure of farm holdings dominated by small and marginal farmers, it is necessary to increase both farm and non-farm incomes along with providing incentives for movement of labor from the farm to the non-farm sector. The access to non-farm income is critical in raising household income along with enhancing the capacity of the poor farmers to

invest in agriculture.[11] The important issue, however, is to promote rapid growth of high productivity non-farm activities rather than traditional low-productivity ones which provide only subsistence and act as a source of 'distress employment'. The non-farm activities which are critical in the above context are those that have strong linkages with the agriculture sector. The working of a two-way linkage is also important to recognize: while these dynamic non-farm activities with links to agriculture can emerge as important sources of household income, a rapid agricultural growth would also require these activities (e.g. agro-processing and agri-business development) to facilitate the access of the farmers to modern inputs and ensure increasing demand for agricultural products. Agri-business facilitates production and distribution of inputs, equipment and repair services. The processing and marketing of primary agricultural products create forward linkages and enhance the profitability of crop production. These developments will be critical in sustaining the growth and diversification of the rural economy and promoting a structure of agriculture that can respond to the changing pattern of demand and expand the demand in domestic and external markets. In addition to exchange functions, such a strategy will (i) provide a resource bed for better farm investments; (ii) generate a value added price to the farmers; (iii) support crop diversification and develop logistics for efficient marketing at the grassroots level; and (iv) help evolve better marketing practices and linkages to expand the benefits of public policies.

For ensuring developments along the above lines, in addition to creating an enabling supply-side environment, the government needs to play a major role in overcoming structural deficiencies, creating linkages and ensuring competitive behaviors. Efforts will be needed for entrepreneurship development, building up technological capabilities, improving access to finance, and developing appropriate policies and institutions. Improved institutions and infrastructure would support the income growth of the poor farmers by reducing transport and transaction costs and improving market efficiency. Keeping a long run perspective, education and skill

[11] While productivity-enhancing investments in agriculture are essential in raising farm incomes, increasing non-agricultural income for the land-poor households can release important internal dynamics in raising the household income and increasing agricultural productivity. The access to non-farm income not only raises household income but also increases the household's capacity to invest in agriculture. It is more likely that farm households having non-agricultural sources of income will invest greater amount of resources in agriculture compared to similar households with no access to non-farm income.

training constitute the best investments to improve farm productivity and incomes. In short, four major areas need emphasis in the medium term; (i) increased investments in agriculture and supportive infrastructure; (ii) increasing profitability of agriculture through technological and other interventions; (iii) establishing non-farm linkages; and (iv) providing access to credit, extension and other support services.

5. Concluding Remarks

The experience of the 1990s indicates a slow progress in poverty reduction which is somewhat intriguing in the backdrop of higher agricultural growth during the second-half of the period. One possible explanation is that much of the growth during the period came from the expansion of HYV rice production, especially during the winter season. The increased rice productivity, however, was not translated into higher farm incomes, particularly for the poor farmers, due to slow increase in rice prices compared with the wage rate and input prices. The nominal wage rate during the period increased almost at par with the consumer price index, but the entitlement of staple food (rice) for the land-poor households improved due to slow increase in nominal rice price. It is likely, therefore, that the agricultural growth of the period led by increased rice production benefited the land-poor labor-selling households more through low rice prices rather than the small rice producing households. This indicates that a rice-led agricultural growth through improvements in technology has a limited impact in increasing household income of the poor farmers and hence, on the rate of reduction of income poverty for the small and marginal farmers. One policy implication of the above arguments is that, while agricultural growth has a major role in the process of rural poverty reduction, its quantitative impact on poverty reduction will depend largely on the success in diversifying to high value-added crops as well as non-crop agriculture such as poultry, livestock and fishery sectors. Similar observations are also relevant for the non-farm sector where the key challenge is to link the poor producers with high value-added non-farm activities. Although the rural non-farm sector during the 1990s contributed to increased income inequalities, policies are needed not to limit the growth of these activities but to accelerate growth and facilitate the participation of the poorer groups in remunerative non-farm activities. This requires investments in education and human resource development of the poor and promotion of activities that are technologically efficient, economically productive and can respond to changes in market demand.

The above interventions will have maximum impact on poverty when these are targeted to disadvantaged regions since areas with good agricultural performance also have lower poverty incidence. In geographical areas, which are vulnerable to adverse ecological processes, specific measures are needed which are consistent with demographic circumstances and livelihood opportunities. Nevertheless, the policy implications are clear: the ability of the poor to benefit from agricultural growth depends on individual and household characteristics, occupational patterns, access to assets and other socio-economic factors. For generating sustainable impact of agricultural growth on the poor, it is necessary to address specific disadvantages of particular groups depending upon the observed poverty outcomes. For a poverty-reducing agricultural development agenda in Bangladesh, these specific concerns are important to accommodate within the agenda itself. A viable and dynamic agriculture, created through a better management of the resource base, technology adoption process and economic potentials at both aggregate and disaggregate levels, has a significant potential to contribute to sustained poverty reduction in the country.

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